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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,052	03/10/2004	Tomomi Moriya	49677-154	4705

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EXAMINER	
VINCENT, SEAN E	

ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/796,052	MORIYA ET AL.	
	Examiner	Art Unit	
	Sean E. Vincent	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10-15 and 19-21* is/are allowed.

6)☒ Claim(s) *1-6,8 and 16-18* is/are rejected.

7)☒ Claim(s) *7 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-2 and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Knieling et al (US 2002/0069672 A1).

3. Knieling et al taught methods of making glass tubes by heating glass cylinders in a resistance furnace and piercing them with a drill head designed to guarantee that the static friction between the drill head and the glass in the softened portion "is always distributed in a uniform manner around the circumference of the drill head". The drill head of Knieling et al was spherical on the front with a gradually decreasing diameter on the rear. Knieling et al also taught that a blowpipe was attached to the front end of the cylinder. (see figures, abstract, [0014] – [0026]). Knieling et al did not teach that stress exerted on the glass tube was controlled, per se. In light of the discussion of uniform static friction presented by Knieling et al, stress control on at least the inner surface of the tube would have necessarily been controlled.

4. Knieling et al did not teach controlling an internal or external pressure of the glass tube, per se. By teaching a blow pipe (ref no. 28) attached to the tube, Knieling et al would necessarily require some means of pressurizing the blow pipe and the interior of the drawn glass tube.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3, 6, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knieling et al.

8. Knieling et al did not expressly teach control of the pressure deviation between internal and external pressures such that the deviation was kept substantially constant. As stated above, the presence of a blow pipe would have required pressurization means. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a means of maintaining a constant pressure because the inherent pressurizing means for the blow pipe would have been expected to run at a constant speed in the absence of some teaching to the contrary.

9. Knieling et al did not expressly teach that the blow pipe was welded to the glass tube. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to weld the blow pipe of Knieling et al to the glass tube of Knieling et al because whatever attachment means used would have had to remain intact at high temperatures near the softened glass and would have had to remain air-tight under these conditions.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knieling et al in view of Yokokawa et al (US 5785729).

11. Knieling et al was silent with respect to the chemical composition of the drill head. Yokokawa et al taught a very similar process to that of Knieling et al in which a "hot carbon drill" was used. (see abstract, figure 6, col. 8, lines 1-25; col. 9, lines 5-23; examples 3, 6, and 7). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the drill head of Knieling et al out of carbon because Knieling et al was clearly an improvement over Yokokawa et al and Yokokawa et al showed that "hot carbon drill" methods were known.

12. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knieling et al or Yokokawa et al in view of Shigesane (JP 63-40735).

13. Knieling et al and Yokokawa et al taught only resistance heaters used for heating the glass material in hot carbon drill pressing methods. Neither taught heating the drill or piercing member with induction heaters. Shigesane taught an apparatus for heating the interior of glass tubes by induction heating of a heating element located inside of the tube (see English abstract and figures). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use induction heat to heat the drill of Knieling et al or of Yokokawa et al

because Shigesane taught that instantaneous heating of the inside of the glass vessel was possible and it is clear from the figures that the induction coils were easily to configure in any manner desired.

14. With regard to claim 4, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the induction heater of Shigesane to heat the drill head in the method of Knieling et al because Shigesane taught that it allowed rapid heating of the interior of the glass.

Allowable Subject Matter

15. Claims 10-15 and 19-21 are allowed.

16. Claims 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or fairly suggest methods of making glass tubes wherein the piercing plug is tapered at the end with a constant diameter cylindrical or columnar portion as claimed and the glass material is cooled as claimed while the glass is in contact with the columnar or cylindrical portion as claimed.

18. Likewise, the prior art does not teach or fairly suggest methods for making glass tubes as claimed wherein the pressure at which the plug is pressed into the glass is detected and a detection signal is used to adjust the heat generated by the heating element as claimed.

19. Furthermore, the prior art does not teach or fairly suggest apparatus for making glass tube as claimed having a pressure detecting unit and a controller acting to control the heating element or cooling gas based on detected pressure as claimed. The prior art does not teach or fairly suggest apparatus for making glass tube as claimed having a controller increasing or decreasing the temperature of the heating element or the flow rate of cooling gas based on a current or voltage of the motor as claimed.

20. It would not have been obvious to incorporate the above features into the apparatus or methods of the prior art.

Conclusion

21. The prior art made of record and not relied upon is cited to further show the state of the art.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Vincent whose telephone number is (571) 272-1194. The examiner can normally be reached on M - F (8:30 - 6:00).

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S Vincent
January 11, 2005

Sean E Vincent
Primary Examiner
Art Unit 1731